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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,699	05/27/2005	Masato Doi	112857-470	8615
29175 7590 07/24/2007 BELL, BOYD & LLOYD, LLP P. O. BOX 1135 CHICAGO, IL 60690			EXAMINER MCCLELLAND, KIMBERLY KEIL	
			ART UNIT 1734	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/511,699

Applicant(s)

DOI ET AL.

Examiner

Kimberly K. McClelland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36 and 38-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36 and 38-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 7th, 2007 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 47 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, while being enabling for arranging the devices on a temporary holding substrate, does not reasonably provide enablement for "bringing the devices into contact with a temporary adhesion layer provided on the first substrate for temporarily adhering the devices to the temporary adhesion layer thereby arranging the devices on the first substrate, before embedding

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the other-side devices into the pressure sensitive adhesive layer". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. There is no indication in the specification as to the order of these method steps. The introduction of the word "before" constitutes new matter.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 47-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 47 recites the limitation "the devices" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. It is unclear if (the-devices) refers to one-side devices or other side devices. For the purposes of examination, examiner assumes "the devices" may be one-side devices or other-side devices. Claims 48-50 depend from claim 47.

Claim Rejections - 35 USC § 103

7. Claims 39-46 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent Application Publication No. 2003/0227253 to Seo et al.

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8. With respect to claim 39, Seo et al. discloses a display device, including one-side and other-side devices (i.e. pixel; See paragraph 0015), with a hardened insulating layer (603), which has holes filled with conductive material (602) to form second electric wirings. The first wirings (606) along with the third substrate (608) are located on the opposite side of the device layer (605; See Figure 6B). The process steps of embedding devices, curing the pressure sensitive adhesive, transferring one-side and other-side devices, along with removing the first and second substrate layers is not found to impart significant structural changes to the claimed product. If there is any structural difference, the difference would have been minor or obvious.

9. As to claim 40, Seo et al. discloses driving by impressing a voltage on the devices through the first electric wirings and the second electric wirings (See paragraph 0016).

10. As to claim 41, Seo et al. discloses a display device, including one-side and other-side devices (i.e. pixel; See paragraph 0015), with a hardened insulating layer (603), which has holes filled with conductive material (602) to form second electric wirings. The first wirings (606) along with the third substrate (608) are located on the opposite side of the device layer (605; See Figure 6B). The process steps of embedding devices, curing the pressure sensitive adhesive, transferring one-side and other-side devices, along with removing the first and second substrate layers is not found to impart significant structural changes to the claimed product. If there is any structural difference, the difference would have been minor or obvious.

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11. As to claim 42, Seo et al. discloses one-side devices different from other side devices (See paragraph 0015).

12. As to claim 43, Seo et al. discloses one side devices and other-side devices are held in an embedded state on different areas of the substrate (See Figure 5B).

13. As to claim 44, Seo et al. discloses display is carried out through simple matrix driving by impressing a voltage on the devices through the first electric wirings and the second electric wirings (See paragraph 0016).

14. As to claim 45, Seo et al. discloses the one-side and other-side devices are any one of display devices and driving circuits (See paragraph 0015).

15. As to claim 46, Seo et al. discloses display is carried out through active matrix driving by impressing a voltage on the display devices by the driving circuit devices. (See paragraph 0016).

16. Claims 39, 41-43, and 45 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over PCT Publication No. WO02/08463 as evidenced by corresponding U.S. Patent No. 6,872,635 to Hayashi et al.

17. With respect to claim 39, Hayashi et al. discloses a display device, including one-side and other-side devices (42/62) with a hardened adhesive layer (45), which has holes filled with conductive material (49) to form second electric wirings. The first wirings (46) along with the third substrate (47) are located on the opposite side of the device layer (42/62; See Figure 12). The process steps of embedding devices, curing

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the pressure sensitive adhesive, transferring one-side and other-side devices, along with removing the first and second substrate layers is not found to impart significant structural changes to the claimed product. If there is any structural difference, the difference would have been minor or obvious.

18. With respect to claim 39, Hayashi et al. discloses a display device, including one-side and other-side devices (42/62) with a hardened adhesive layer (45), which has holes filled with conductive material (49) to form second electric wirings. The first wirings (46) along with the third substrate (47) are located on the opposite side of the device layer (42/62; See Figure 12). The process steps of embedding devices, curing the pressure sensitive adhesive, transferring one-side and other-side devices, along with removing the first and second substrate layers is not found to impart significant structural changes to the claimed product. If there is any structural difference, the difference would have been minor or obvious.

19. As to claim 42, Hayashi et al. discloses one-side devices different from other side devices (See paragraph 0170).

20. As to claim 43, Hayashi et al. discloses one side devices and other-side devices are held in an embedded state on different areas of the substrate (See Figure 16).

21. As to claim 45, Hayashi et al. discloses the one-side and other-side devices are any one of display devices and driving circuits (See paragraph 0170).

22. Claims 36, 38-39, 41-43, and 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Publication No. WO02/08463 as evidenced by corresponding

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U.S. Patent No. 6,872,635 to Hayashi et al. in view of U.S. Patent No. 5,426,342 to Nakamura et al.

23. With respect to claim 36, Hayashi et al. discloses embedding one-side devices (8) into an adhesive layer (7) provided on a second substrate (6); embedding other-side devices (3) arranged on a first substrate into a adhesive layer (7) provided on a second substrate(6) where one-side devices (8) are embedded in the adhesive layer; and the one-side devices and the other-side devices have different characteristics (See paragraph 0126); and stripping the other-side devices from the first substrate thereby holding the other-side devices in an embedded states in the adhesive layer (See Figure 2A-2F) wherein the other-side devices and one-side devices are light emitting diodes (See paragraph 0170). However, Hayashi et al. does not disclose using pressure sensitive adhesive. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53). Therefore, it would have been obvious to combine Nakamura et al. with Hayashi et al. to obtain the invention as disclosed in claim 36.

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24. As to claim 38, Hayashi et al. discloses the one-side (8) devices and the other-side devices (3a) are held in the embedded state in different areas on the substrate (See Figure 2D).

25. As to claim 39, Hayashi et al. discloses embedding devices (42) arranged on a first substrate (41) into a adhesive layer (45) provided on a second substrate (43, See Figure 10) wherein the devices are light emitting diodes (See paragraph 0170); stripping the devices from the first substrate thereby holding the devices in an embedded state in the adhesive layer (See Figure 11), and hardening the adhesive layer (See paragraph 0157); forming first electric wirings (46) on the adhesive layer, adhering a third substrate (47) onto a side on which the first electric wirings are formed of the adhesive layer, and stripping the second substrate and the adhesive layer from each other (See Figure 12); and providing adhesive layer with openings (65, See Figure 16) reaching the devices, filling the openings with a conductive material (49), and forming second electric wirings (63, 64) on the adhesive layer. However, Hayashi et al. does not disclose using pressure sensitive adhesive. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53). Therefore, it would

have been obvious to combine Nakamura et al. with Hayashi et al. to obtain the invention as disclosed in claim 39.

26. As to claim 41, Hayashi et al. discloses embedding one-side devices (42) arranged on a first substrate (41) into a adhesive layer (45) provided on a second substrate (43, See Figure 10), and stripping the one-side devices from the first substrate thereby holding the one-side devices in an embedded state in the adhesive layer (See Figure 11); further embedding other-side devices arranged on the first substrate into the adhesive layer (See paragraph 0170), and stripping the other-side devices from the first substrate thereby holding the other-side devices (62) in an embedded state in the adhesive layer, where the one-side devices are embedded in the adhesive layer wherein the one-side devices and the other side devices are light emitting diodes (See paragraph 0170); hardening the adhesive layer where the one-side devices and the other-side devices are held in the embedded state in the adhesive layer (See paragraph 0157); forming first electric wirings on the adhesive layer (46), adhering a third substrate (47) onto the side on which the first electric wirings are formed of the adhesive layer, and stripping the second substrate and the adhesive layer from each other (See Figure 12); and providing the adhesive layer with openings reaching the one-side devices or the other-side devices, filling the openings with a conductive material (49), and forming second electric wirings on the adhesive layer (63, 64, See Figure 16). However, Hayashi et al. does not disclose using pressure sensitive adhesive. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines

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45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53). Therefore, it would have been obvious to combine Nakamura et al. with Hayashi et al. to obtain the invention as disclosed in claim 41.

27. As to claim 42, Hayashi et al. discloses the one-side devices and the other-side devices have different characteristics (See paragraph 0170).

28. As to claim 43, Hayashi et al. discloses one-side devices and the other-side devices are held in the embedded state in different areas on the second substrate (See Figure 16).

29. As to claim 47, Hayashi et al. discloses bringing the devices into contact with a temporary adhesion layer provided on the first substrate for temporarily adhering the devices to the temporary adhesion layer thereby arranging the devices on the first substrate, before embedding the other-side devices into the pressure sensitive adhesive layer (See Figure 2A). However, Hayashi et al. does not disclose using pressure sensitive adhesive. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The

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motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

30. As to claim 48, Hayashi et al. discloses a tack of the pressure sensitive adhesive layer provided on the second substrate is greater than a tack of the temporary adhesion layer provided on the first substrate, as shown by the transfer of devices from the temporary adhesion layer to the adhesive layer (See Figures 10-11). However, Hayashi et al. does not disclose using pressure sensitive adhesive. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

31. As to claim 49, Hayashi et al. discloses tack of at least one of the adhesive layer and the temporary adhesion layer is changed so that the tack of the pressure sensitive adhesive layer will be greater than the tack of the temporary adhesion layer (i.e. thermally cure; See paragraph 0187). However, Hayashi et al. does not disclose using pressure sensitive adhesive. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive

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adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

32. As to claim 50, Hayashi et al. discloses curing the adhesive layer using a heating treatment (i.e. thermosetting; See paragraph 0187). However, Hayashi et al. does not disclose using pressure sensitive adhesive. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

33. Claims 40 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Publication No. WO02/08463 as evidenced by corresponding U.S. Patent No. 6,872,635 to Hayashi et al. in view of U.S. Patent No. 5,426,342 to Nakamura et al. as applied to claims 36, 38-39, 41-43, and 47-50 above, and further in view of U.S. Patent Application Publication No. 2003/0227253 to Seo et al.

34. With respect to claim 40, Hayashi et al. discloses an element transfer method, including using light emitting devices as elements (See paragraph 0170). Nakamura et al. discloses the use of a pressure and heat sensitive adhesive to adhere the elements

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to a substrate. However, Hayashi et al. and Nakamura et al. do not disclose driving methods. Seo et al. discloses display is carried out through simple matrix driving by impressing a voltage on the devices through the first electric wirings and the second electric wirings (See paragraph 0016). It would have been obvious to one of ordinary skill in the art to combine the driving method of Seo et al. with the element transfer method, disclosed by Hayashi et al. and the pressure sensitive adhesive taught by Nakamura et al. The motivation would have been to cause electroluminescence (Seo et al., See paragraph 0051). Therefore it would have been obvious to combine Seo et al. with Hayashi et al. and Nakamura et al. to obtain the invention as disclosed in claim 40.

35. As to claim 44, Hayashi et al. discloses an element transfer method, including using light emitting devices as elements (See paragraph 0170). Nakamura et al. discloses the use of a pressure and heat sensitive adhesive to adhere the elements to a substrate. However, Hayashi et al. and Nakamura et al. do not disclose driving methods. Seo et al. discloses display is carried out through simple matrix driving by impressing a voltage on the devices through the first electric wirings and the second electric wirings (See paragraph 0016). It would have been obvious to one of ordinary skill in the art to combine the driving method of Seo et al. with the element transfer method, disclosed by Hayashi et al. and the pressure sensitive adhesive taught by Nakamura et al. The motivation would have been to cause electroluminescence (Seo et al., See paragraph 0051). Therefore it would have been obvious to combine Seo et al. with Hayashi et al. and Nakamura et al. to obtain the invention as disclosed in claim 44.

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36. As to claim 45, Hayashi et al. discloses one of the one-side devices and the other-side devices are any one of display devices and driving circuit devices (see paragraph 0170).

37. As to claim 46, Hayashi et al. discloses an element transfer method, including using light emitting devices as elements (See paragraph 0170). Nakamura et al. discloses the use of a pressure and heat sensitive adhesive to adhere the elements to a substrate. However, Hayashi et al. and Nakamura et al. do not disclose driving methods. Seo et al. discloses display is carried out through active matrix driving by impressing a voltage on the display devices by the driving circuit devices. (See paragraph 0016). It would have been obvious to one of ordinary skill in the art to combine the driving method of Seo et al. with the element transfer method, disclosed by Hayashi et al. and the pressure sensitive adhesive taught by Nakamura et al. The motivation would have been to allow for drive at a low voltage (Seo et al., See paragraph 0052). Therefore it would have been obvious to combine Seo et al. with Hayashi et al. and Nakamura et al. to obtain the invention as disclosed in claim 46.

Response to Arguments

38. Applicant's arguments filed May 7th, 2007 have been fully considered but they are not persuasive.

39. Applicant's arguments are primarily drawn to the combination of Nakamura with Hayashi. Applicant argues Nakamura teaches away from Hayashi, because Hayashi

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exclusively discloses heat-softening (i.e. thermoplastic) adhesive layer, while Nakamura *exclusively* discloses heat-curing (i.e. thermosetting) adhesive layer.

40. Examiner disagrees. Applicant is directed to paragraph 0187 of Hayashi, which specifically discloses the adhesive layer of the on the transfer substrate *is not exclusively* a thermoplastic adhesive. On the contrary, Hayashi specifically discloses an alternate embodiment wherein a thermosetting adhesive may be used. The thermosetting adhesive demonstrated in Hayashi is similar to the heating and pressure sensitive material of Nakamura. Examiner asserts the obvious substitution of the pressure sensitive material in Nakamura for the thermosetting adhesive in Hayashi would not significantly alter the device transfer process. Consequently, applicant's arguments are not persuasive.

41. Applicant's remaining arguments are based on the dependency of claims 38, 40, and 42-50 on independent claims 36, 39, and 41. As a result, the rejections are maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly K. McClelland whose telephone number is (571) 272-2372. The examiner can normally be reached on 8:00 a.m.-5 p.m. Mon-Fri..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571)272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kim McChlor

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PRIMARY EXAMINER
SPE ART UNIT 1734